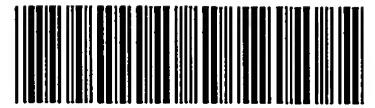


RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/530,753
Source: PG
Date Processed by STIC: 3/22/06

ENTERED



PCT

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/530,753

DATE: 03/22/2006

TIME: 15:26:38

Input Set : A:\SEQLIST223002100300.TXT
 Output Set: N:\CRF4\03222006\J530753.raw

```

4 <110> APPLICANT: Chiron Corporation
5   Pizza, Mariagrazia
7 <120> TITLE OF INVENTION: Polypeptide-Vaccines for Broad
8   Protection Against Hypervirulent Meningococcal Lineages
11 <130> FILE REFERENCE: 22300-21003.00
13 <140> CURRENT APPLICATION NUMBER: 10/530,753
C--> 14 <141> CURRENT FILING DATE: 2005-04-08
16 <150> PRIOR APPLICATION NUMBER: WO PCT/IB03/04848
17 <151> PRIOR FILING DATE: 2003-10-02
19 <150> PRIOR APPLICATION NUMBER: GB 0309115.4
20 <151> PRIOR FILING DATE: 2003-04-22
22 <150> PRIOR APPLICATION NUMBER: GB 0305831.0
23 <151> PRIOR FILING DATE: 2003-03-13
25 <150> PRIOR APPLICATION NUMBER: GB 0223741.0
26 <151> PRIOR FILING DATE: 2002-10-11
28 <160> NUMBER OF SEQ ID NOS: 12
30 <170> SOFTWARE: FastSEQ for Windows Version 4.0
32 <210> SEQ ID NO: 1
33 <211> LENGTH: 350
34 <212> TYPE: PRT
35 <213> ORGANISM: N. meningitidis
37 <400> SEQUENCE: 1
38 Met Lys His Phe Pro Ser Lys Val Leu Thr Thr Ala Ile Leu Ala Thr
39      1           5           10          15
40 Phe Cys Ser Gly Ala Leu Ala Ala Thr Asn Asp Asp Asp Val Lys Lys
41      20          25          30
42 Ala Ala Thr Val Ala Ile Ala Ala Ala Tyr Asn Asn Gly Gln Glu Ile
43      35          40          45
44 Asn Gly Phe Lys Ala Gly Glu Thr Ile Tyr Asp Ile Asp Glu Asp Gly
45      50          55          60
46 Thr Ile Thr Lys Lys Asp Ala Thr Ala Ala Asp Val Glu Ala Asp Asp
47 65      70          75          80
48 Phe Lys Gly Leu Gly Leu Lys Lys Val Val Thr Asn Leu Thr Lys Thr
49      85          90          95
50 Val Asn Glu Asn Lys Gln Asn Val Asp Ala Lys Val Lys Ala Ala Glu
51      100         105         110
52 Ser Glu Ile Glu Lys Leu Thr Thr Lys Leu Ala Asp Thr Asp Ala Ala
53      115         120         125
54 Leu Ala Asp Thr Asp Ala Ala Leu Asp Ala Thr Thr Asn Ala Leu Asn
55      130         135         140
56 Lys Leu Gly Glu Asn Ile Thr Thr Phe Ala Glu Glu Thr Lys Thr Asn
57 145      150         155         160
58 Ile Val Lys Ile Asp Glu Lys Leu Glu Ala Val Ala Asp Thr Val Asp

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/530,753

DATE: 03/22/2006

TIME: 15:26:38

Input Set : A:\SEQLIST223002100300.TXT

Output Set: N:\CRF4\03222006\J530753.raw

59 165 170 175
 60 Lys His Ala Glu Ala Phe Asn Asp Ile Ala Asp Ser Leu Asp Glu Thr
 61 180 185 190
 62 Asn Thr Lys Ala Asp Glu Ala Val Lys Thr Ala Asn Glu Ala Lys Gln
 63 195 200 205
 64 Thr Ala Glu Glu Thr Lys Gln Asn Val Asp Ala Lys Val Lys Ala Ala
 65 210 215 220
 66 Glu Thr Ala Ala Gly Lys Ala Glu Ala Ala Gly Thr Ala Asn Thr
 67 225 230 235 240
 68 Ala Ala Asp Lys Ala Glu Ala Val Ala Ala Lys Val Thr Asp Ile Lys
 69 245 250 255
 70 Ala Asp Ile Ala Thr Asn Lys Asp Asn Ile Ala Lys Lys Ala Asn Ser
 71 260 265 270
 72 Ala Asp Val Tyr Thr Arg Glu Glu Ser Asp Ser Lys Phe Val Arg Ile
 73 275 280 285
 74 Asp Gly Leu Asn Ala Thr Thr Glu Lys Leu Asp Thr Arg Leu Ala Ser
 75 290 295 300
 76 Ala Glu Lys Ser Ile Ala Asp His Asp Thr Arg Leu Asn Gly Leu Asp
 77 305 310 315 320
 78 Lys Thr Val Ser Asp Leu Arg Lys Glu Thr Arg Gln Gly Leu Ala Glu
 79 325 330 335
 80 Gln Ala Ala Leu Ser Gly Leu Phe Gln Pro Tyr Asn Val Gly
 81 340 345 350
 84 <210> SEQ ID NO: 2
 85 <211> LENGTH: 327
 86 <212> TYPE: PRT
 87 <213> ORGANISM: N. meningitidis
 89 <400> SEQUENCE: 2
 90 Ala Thr Asn Asp Asp Asp Val Lys Lys Ala Ala Thr Val Ala Ile Ala
 91 1 5 10 15
 92 Ala Ala Tyr Asn Asn Gly Gln Glu Ile Asn Gly Phe Lys Ala Gly Glu
 93 20 25 30
 94 Thr Ile Tyr Asp Ile Asp Glu Asp Gly Thr Ile Thr Lys Lys Asp Ala
 95 35 40 45
 96 Thr Ala Ala Asp Val Glu Ala Asp Asp Phe Lys Gly Leu Gly Leu Lys
 97 50 55 60
 98 Lys Val Val Thr Asn Leu Thr Lys Thr Val Asn Glu Asn Lys Gln Asn
 99 65 70 75 80
 100 Val Asp Ala Lys Val Lys Ala Ala Glu Ser Glu Ile Glu Lys Leu Thr
 101 85 90 95
 102 Thr Lys Leu Ala Asp Thr Asp Ala Ala Leu Ala Asp Thr Asp Ala Ala
 103 100 105 110
 104 Leu Asp Ala Thr Thr Asn Ala Leu Asn Lys Leu Gly Glu Asn Ile Thr
 105 115 120 125
 106 Thr Phe Ala Glu Glu Thr Lys Thr Asn Ile Val Lys Ile Asp Glu Lys
 107 130 135 140
 108 Leu Glu Ala Val Ala Asp Thr Val Asp Lys His Ala Glu Ala Phe Asn
 109 145 150 155 160
 110 Asp Ile Ala Asp Ser Leu Asp Glu Thr Asn Thr Lys Ala Asp Glu Ala

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/530,753

DATE: 03/22/2006

TIME: 15:26:38

Input Set : A:\SEQLIST223002100300.TXT
 Output Set: N:\CRF4\03222006\J530753.raw

```

111          165          170          175
112 Val Lys Thr Ala Asn Glu Ala Lys Gln Thr Ala Glu Glu Thr Lys Gln
113          180          185          190
114 Asn Val Asp Ala Lys Val Lys Ala Ala Glu Thr Ala Ala Gly Lys Ala
115          195          200          205
116 Glu Ala Ala Ala Gly Thr Ala Asn Thr Ala Ala Asp Lys Ala Glu Ala
117          210          215          220
118 Val Ala Ala Lys Val Thr Asp Ile Lys Ala Asp Ile Ala Thr Asn Lys
119 225          230          235          240
120 Asp Asn Ile Ala Lys Lys Ala Asn Ser Ala Asp Val Tyr Thr Arg Glu
121          245          250          255
122 Glu Ser Asp Ser Lys Phe Val Arg Ile Asp Gly Leu Asn Ala Thr Thr
123          260          265          270
124 Glu Lys Leu Asp Thr Arg Leu Ala Ser Ala Glu Lys Ser Ile Ala Asp
125          275          280          285
126 His Asp Thr Arg Leu Asn Gly Leu Asp Lys Thr Val Ser Asp Leu Arg
127          290          295          300
128 Lys Glu Thr Arg Gln Gly Leu Ala Glu Gln Ala Ala Leu Ser Gly Leu
129 305          310          315          320
130 Phe Gln Pro Tyr Asn Val Gly
131          325
134 <210> SEQ ID NO: 3
135 <211> LENGTH: 248
136 <212> TYPE: PRT
137 <213> ORGANISM: N. meningitidis
139 <400> SEQUENCE: 3
140 Val Ala Ala Asp Ile Gly Ala Gly Leu Ala Asp Ala Leu Thr Ala Pro
141 1          5          10          15
142 Leu Asp His Lys Asp Lys Gly Leu Gln Ser Leu Thr Leu Asp Gln Ser
143          20          25          30
144 Val Arg Lys Asn Glu Lys Leu Lys Leu Ala Ala Gln Gly Ala Glu Lys
145          35          40          45
146 Thr Tyr Gly Asn Gly Asp Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp
147          50          55          60
148 Lys Val Ser Arg Phe Asp Phe Ile Arg Gln Ile Glu Val Asp Gly Gln
149 65          70          75          80
150 Leu Ile Thr Leu Glu Ser Gly Glu Phe Gln Val Tyr Lys Gln Ser His
151          85          90          95
152 Ser Ala Leu Thr Ala Phe Gln Thr Glu Gln Ile Gln Asp Ser Glu His
153          100         105         110
154 Ser Gly Lys Met Val Ala Lys Arg Gln Phe Arg Ile Gly Asp Ile Ala
155          115         120         125
156 Gly Glu His Thr Ser Phe Asp Lys Leu Pro Glu Gly Gly Arg Ala Thr
157          130         135         140
158 Tyr Arg Gly Thr Ala Phe Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr
159 145         150         155         160
160 Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly Asn Gly Lys Ile Glu His
161          165         170         175
162 Leu Lys Ser Pro Glu Leu Asn Val Asp Leu Ala Ala Asp Ile Lys

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/530,753

DATE: 03/22/2006

TIME: 15:26:38

Input Set : A:\SEQLIST223002100300.TXT

Output Set: N:\CRF4\03222006\J530753.raw

163 180 185 190
 164 Pro Asp Gly Lys Arg His Ala Val Ile Ser Gly Ser Val Leu Tyr Asn
 165 195 200 205
 166 Gln Ala Glu Lys Gly Ser Tyr Ser Leu Gly Ile Phe Gly Gly Lys Ala
 167 210 215 220
 168 Gln Glu Val Ala Gly Ser Ala Glu Val Lys Thr Val Asn Gly Ile Arg
 169 225 230 235 240
 170 His Ile Gly Leu Ala Ala Lys Gln
 171 245
 174 <210> SEQ ID NO: 4
 175 <211> LENGTH: 179
 176 <212> TYPE: PRT
 177 <213> ORGANISM: N. meningitidis
 179 <400> SEQUENCE: 4
 180 Val Ser Ala Val Ile Gly Ser Ala Ala Val Gly Ala Lys Ser Ala Val
 181 1 5 10 15
 182 Asp Arg Arg Thr Thr Gly Ala Gln Thr Asp Asp Asn Val Met Ala Leu
 183 20 25 30
 184 Arg Ile Glu Thr Thr Ala Arg Ser Tyr Leu Arg Gln Asn Asn Gln Thr
 185 35 40 45
 186 Lys Gly Tyr Thr Pro Gln Ile Ser Val Val Gly Tyr Asn Arg His Leu
 187 50 55 60
 188 Leu Leu Leu Gly Gln Val Ala Thr Glu Gly Glu Lys Gln Phe Val Gly
 189 65 70 75 80
 190 Gln Ile Ala Arg Ser Glu Gln Ala Ala Glu Gly Val Tyr Asn Tyr Ile
 191 85 90 95
 192 Thr Val Ala Ser Leu Pro Arg Thr Ala Gly Asp Ile Ala Gly Asp Thr
 193 100 105 110
 194 Trp Asn Thr Ser Lys Val Arg Ala Thr Leu Leu Gly Ile Ser Pro Ala
 195 115 120 125
 196 Thr Gln Ala Arg Val Lys Ile Val Thr Tyr Gly Asn Val Thr Tyr Val
 197 130 135 140
 198 Met Gly Ile Leu Thr Pro Glu Glu Gln Ala Gln Ile Thr Gln Lys Val
 199 145 150 155 160
 200 Ser Thr Thr Val Gly Val Gln Lys Val Ile Thr Leu Tyr Gln Asn Tyr
 201 165 170 175
 202 Val Gln Arg
 206 <210> SEQ ID NO: 5
 207 <211> LENGTH: 168
 208 <212> TYPE: PRT
 209 <213> ORGANISM: N. meningitidis
 211 <400> SEQUENCE: 5
 212 Ala Thr Tyr Lys Val Asp Glu Tyr His Ala Asn Ala Arg Phe Ala Ile
 213 1 5 10 15
 214 Asp His Phe Asn Thr Ser Thr Asn Val Gly Gly Phe Tyr Gly Leu Thr
 215 20 25 30
 216 Gly Ser Val Glu Phe Asp Gln Ala Lys Arg Asp Gly Lys Ile Asp Ile
 217 35 40 45
 218 Thr Ile Pro Ile Ala Asn Leu Gln Ser Gly Ser Gln His Phe Thr Asp

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/530,753

DATE: 03/22/2006
TIME: 15:26:38

Input Set : A:\SEQLIST223002100300.TXT
Output Set: N:\CRF4\03222006\J530753.raw

```

219      50          55          60
220 His Leu Lys Ser Ala Asp Ile Phe Asp Ala Ala Gln Tyr Pro Asp Ile
221 65           70          75          80
222 Arg Phe Val Ser Thr Lys Phe Asn Phe Asn Gly Lys Lys Leu Val Ser
223           85          90          95
224 Val Asp Gly Asn Leu Thr Met His Gly Lys Thr Ala Pro Val Lys Leu
225           100         105         110
226 Lys Ala Glu Lys Phe Asn Cys Tyr Gln Ser Pro Met Glu Lys Thr Glu
227           115         120         125
228 Val Cys Gly Gly Asp Phe Ser Thr Thr Ile Asp Arg Thr Lys Trp Gly
229           130         135         140
230 Met Asp Tyr Leu Val Asn Val Gly Met Thr Lys Ser Val Arg Ile Asp
231 145           150         155         160
232 Ile Gln Ile Glu Ala Ala Lys Gln
233           165
236 <210> SEQ ID NO: 6
237 <211> LENGTH: 464
238 <212> TYPE: PRT
239 <213> ORGANISM: N. meningitidis
241 <400> SEQUENCE: 6
242 Ser Pro Asp Val Lys Ser Ala Asp Thr Leu Ser Lys Pro Ala Ala Pro
243 1           5          10          15
244 Val Val Ser Glu Lys Glu Thr Glu Ala Lys Glu Asp Ala Pro Gln Ala
245           20          25          30
246 Gly Ser Gln Gly Gln Gly Ala Pro Ser Ala Gln Gly Ser Gln Asp Met
247           35          40          45
248 Ala Ala Val Ser Glu Glu Asn Thr Gly Asn Gly Gly Ala Val Thr Ala
249           50          55          60
250 Asp Asn Pro Lys Asn Glu Asp Glu Val Ala Gln Asn Asp Met Pro Gln
251 65           70          75          80
252 Asn Ala Ala Gly Thr Asp Ser Ser Thr Pro Asn His Thr Pro Asp Pro
253           85          90          95
254 Asn Met Leu Ala Gly Asn Met Glu Asn Gln Ala Thr Asp Ala Gly Glu
255           100         105         110
256 Ser Ser Gln Pro Ala Asn Gln Pro Asp Met Ala Asn Ala Ala Asp Gly
257           115         120         125
258 Met Gln Gly Asp Asp Pro Ser Ala Gly Gly Gln Asn Ala Gly Asn Thr
259           130         135         140
260 Ala Ala Gln Gly Ala Asn Gln Ala Gly Asn Asn Gln Ala Ala Gly Ser
261 145           150         155         160
262 Ser Asp Pro Ile Pro Ala Ser Asn Pro Ala Pro Ala Asn Gly Gly Ser
263           165         170         175
264 Asn Phe Gly Arg Val Asp Leu Ala Asn Gly Val Leu Ile Asp Gly Pro
265           180         185         190
266 Ser Gln Asn Ile Thr Leu Thr His Cys Lys Gly Asp Ser Cys Ser Gly
267           195         200         205
268 Asn Asn Phe Leu Asp Glu Glu Val Gln Leu Lys Ser Glu Phe Glu Lys
269           210         215         220
270 Leu Ser Asp Ala Asp Lys Ile Ser Asn Tyr Lys Lys Asp Gly Lys Asn

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/530,753

DATE: 03/22/2006

TIME: 15:26:39

Input Set : A:\SEQLIST223002100300.TXT

Output Set: N:\CRF4\03222006\J530753.raw

L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date